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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 2

Complete if Known	
Application Number	10/510,376
Filing Date	October 5, 2004
First Named Inventor	Schaake
Art Unit	
Examiner Name	
Attorney Docket Number	DEHN-01004US0

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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FOREIGN PATENT DOCUMENTS

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CH		TW 00428163	04/01/2001	Royal Philips Electronics Co.		
		TW 087102806	04/01/2001	Royal Philips Electronics Co.		
		TW 00428722	04/01/2001	Industrial Technology Research Institute		
✓		TW 088210905	04/01/2001	Industrial Technology Research Institute		
		JP-2001-141522	05/25/2001	Fuji Electric Company		

Examiner Signature		Date Considered	10/28/07

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AH		JP-2001-153685	06/08/2001	Sharp Corporation		
		JP-2001-165709	8/22/2001	Koyo Seiko Co. Ltd.		
		JP 2001-174287	06/29/2001	Olympus Optical Company Ltd		
		JP 2001-174291	06/29/2001	Olympus Optical Company Ltd		

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CeA		WO 00/36377	6/22/2000	Bishop Innovation Limited		
		WO 00/71458	11/30/2000	Ishikawajima-Harima Jukogyo Kabushiki Kaisha		
		DE 100 41 936	1/3/2002	Leopold Kostal GmbH		
		DE 195 45 999	6/12/1997	AEG Energietechnik GmbH		
		DE 196 21 709	12/4/1997	Daimler-Benz Aktiengasellschaft		
		DE 196 51 771	4/16/1998	TRW Fahrzeugelektrik GmbH		
		DE 198 35 972	1/20/2000	Leopold Kostal GmbH		
		DE 200 11 490	12/20/2001	iC-Haus GmbH		
		DE 200 11 499	1/11/2001	Hewing GmbH		
		EP 0 070 446	1/26/1983	TESA S.A.		
		EP 0 188 960	7/30/1986	M.C.B.		
		EP 0 189 705	8/6/1986	M.C.B.		
		EP 0 190 181	8/13/1986	Aerospatiale Societe Nationale Industrielle		
		EP 0 195 130	9/24/1986	Dr. Johannes Heidenhain GmbH		
		EP 0 226 652	7/1/1987	Honeywell Regelsysteme GmbH		
		EP 0 241 332	10/14/1987	Bertin & Cie		
		EP 0 242 250	10/21/1987	Bertin & Cie		
		EP 0 276 402	8/3/1988	Siemens Aktiengesellschaft		
		EP 0 348 816	1/3/1990	Bodenseewerk Geratetechnik		
		EP 0 496 072	7/29/1992	TESA S.A.		
		EP 1 050 742	11/8/2000	Dr. Johannes Heidenhain GmbH		
		FR 2 214 389	9/8/1974	Societe Anonyme D'etudes et Realisations		
		FR 2 697 910	5/13/1994	Office National D'etudes et de Recherches		
		FR 2 585 125	1/23/1987	ABF Industrie S.A.		
		FR 2 592 960	7/17/1987	Photonetics		

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		US-2001/013765			
		US-2002/008195			
		US-2002/018407			
✓		US-2002/038848			
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application		)	PATENT APPLICATION
Inventor:	Schaake	)	
Application No.:	10/510,376	)	
Filed:	October 5, 2004	)	
Title:	OPTICAL CONTROLS	)	**Customer No. 28554**

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8
I hereby certify that this correspondence is being deposited in the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on April 6, 2005

Burt Magen, Reg. No. 37,175
Signature Date: April 6, 2005

CONCISE EXPLANATION OF REFERENCES
UNDER 35 C.F.R. §1.98(a)(3)(i)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This document provides the concise explanation of the relevance of all the documents cited in the Information Disclosure Statement ("IDS") filed concurrently with this document.

DE 10041936 discloses a rotary encoder comprising a coding disk 5 and two light barriers 7 and 8. Each of these light barriers comprises a light source disposed between two light detectors 9 and 10. Light is transmitted to the coding disk 5 and reflected back towards light detectors 9 and 10. The rotational and axial position of the coding disk is determined from the light intensity detected by light detectors 9 and 10.

DE 19545999 discloses a coding disk having a track of coding pattern comprising three different code types. Each of these code types influences the light used for determining the position of the coding disk differently. Light is detected by light detectors 12, 19 and 20 and processed using microcomputer 21. From the detected light intensity and the temporal changes in the detected light intensity the direction of rotation and speed of rotation of the coding disk can be determined.

DE 19621709 discloses illuminating different tracks of a gray coding disk with light of different wavelengths. The rotational position of the coding disk is determined based on light reflected from the coding disk and from the present and/or absence of certain wavelengths from the reflected signal.

DE 19651771 discloses a device for measuring the position of a coding disk relative to an optical sensor. The coding disk comprises a number m of tracks, each track defining one bit of a digital code having m bits. The tracks are simultaneously read and the absolute position of the coding disk relative to the detector is determined from the sequence of several sequentially detected digital codes.

DE 19835972 (a family member of US 6240652) discloses a device for measuring the rotational position of a coding disk. Light is emitted from a light source 3 onto a circumferential convex surface of the coding disk. The circumferential convex surface collimates the incident light. Half of the incident light is reflected downwardly towards an array of detectors by surface R1. Reflective surface R1 is situated at a fixed distance from the rotational axis of the coding disk around the entire disk. The second half of the light is reflected downwardly towards the array of detectors by a second reflective surface R2. The distance between the axis of rotation of the coding disk and reflective surface R2 changes with angular position on the disk, as can be seen in Figure 2. The distance between the two received light beams encodes the rotational position of the coding disk, irrespective of the position of the rotational axis of the coding disk relative to the receiver array.

DE 20011490U discloses an optical encoder comprising a light source (6) and light detectors (5) mounted on a semiconductor (1). Light from the light source (6) is emitted towards a fluorescent plate (20) which is located in the focal point of a curved mirror (18) and which diffuses the emitted light. The light is subsequently reflected by the curved mirror (18) towards the light detectors (5) in a substantially parallel beam and attenuated by a rotatably mounted coding member (9) arranged in parallel to the semiconductor (1). The light is emitted from the light source (4) in a direction substantially orthogonal to the surface of the semiconductor (1) by arranging a concave mirror (7) below the light source (4) on the semiconductor (1) (Fig. 1). The mirror reflects stray light in the direction of the main reflector (18).

Alternatively, an optical fibre (11) may be used for directing light towards the main reflector (18) (Fig. 2).

We believe Document DE 20011499 was originally wrongly cited in the International Search Report. The Examiner has corrected this mistake in the revised International Search Report which instead correctly cites DE 200411490 (see above). We do not consider DE'499 relevant to the present invention.

EP 0070446 discloses a device for detecting the longitudinal direction of an object (5) relative to a transmitter (2) and receiver arrangement (3). A grating (4) is projected onto the object (5). This projection is detected using optical detector (3) and used to determine the longitudinal position of object (5).

EP 0189705 discloses a device for reading an optically coded disk comprising a plurality of tracks. Light is transmitted through optical transmission medium B. At the lower end of this transmission medium a plurality of micro-mirrors 10 is arranged. These micro-mirrors 10 can be switched from a state in which light transmitted through the optical transmission means is reflected towards light sink 11b to a state in which light may pass by the micro-mirrors (when micro-mirror 10 is in position 10a). In this state light can be transmitted to the relevant track of the coding disk so that the information content of this track can be read. Only one track of the coding disk is illuminated at any given time and micro-mirrors 10 are sequentially switched to permit transmission of light onto the coding disk so that the tracks are read in a sequential manner.

EP 0190181 discloses a device for detecting the position of an element M relative to the device. Attached to the element M are at least two optical elements 1 and 2. These elements 1 and 2 are illuminated with light from a single light source (7). Light from a half of the illuminated region on the first optical element 1 and from the second half of the illuminated region on the second optical element 2 is collected by lenses 8 and 9 respectively and detected. An optical property of the optical elements(such as its optical density) changes with the optical element's relative position with regard to the illuminated region. The position of the optical elements relative to the illuminated area can be determined by evaluating the intensity of light received by two respective receiving elements.

EP 0195130 discloses means for reading the longitudinal position of a member 2 by detecting signals from incremental markings using detectors 5a, 5b, 5c and 5d. A further device including reference marker R, mirror 5 and reference detectors RA is provided for evaluating the distance between

the receiving unit 4 and member 2.

EP 0226652 refers to an optical position sensor in which the optical properties of an element 18/28130/32 are changed depending on the position of a magnet relative to a metal core. This change in optical properties is detected.

In the device disclosed in EP 0241332 a plurality of sensors C1, C2..Ci are illuminated using an incoherent light beam. The spectra transmission properties of each sensor alter depending on the physical property X that is to be measured. Light received by the detectors is transmitted to a receiving unit 20/22 comprising means to spectrally analyse the received light. The received signals are separated by way of optical Fourier-transformation of the received signal. The transformed signal and the presence or absence of certain wavelength components from the signal permits influences to be drawn on the physical property X that is to be detected.

EP 0242250 discloses an optical sensing device comprising a light source 10, a sensor 14 and a spectral analyser 18. Incoherent light from source 10 is transmitted to the sensor 14 via optical fibre 12. In sensor 14 the incident light is subjected to a periodic or quasi-periodic modulation of its spectrum depending on the magnitude of a physical parameter to be sensed. The modulated light is further transmitted to a spectrum analyser 18, where the influence of the physical parameter on the light is detected and the magnitude of the physical parameter is determined.

EP 0276402 discloses a coding disk for determining the rotational position of an optical encoder. The coding disk comprises a number of concentric coding patterns which use different mechanisms to attenuate reflected or transmitted light. Some of the coding tracks attenuate transmitted/reflected light in an analogue manner while other encoding tracks rely on incremental encoding techniques. The position of the coding disk is determined from the combined information content returned from the coding disk.

EP 0348816 discloses an optical coding device for use in a fly by wire system. The encoding disk is transparent and comprises a disk having radially extending lines around its outer edge. These radial lines are opaque and prevent light transmission from optical fibres 24 and 26 to receiving optical fibres 28 and 30. A receiver counts the number of times the light transmission is interrupted and derives from the two received signals the radial position of coding disk 10.

EP 0469072 discloses an electronic sensor for measuring translational movement by reflection of light. The sensor comprises a light source 3 and a light detector 4. From source 3 the light is transmitted towards a reflective measurement scale. From this measurement scale the light is reflected back to signal

detector 4. The detected light is used to determine the position of the measurement scale.

EP 1050742 discloses an arrangement for detecting relative movement between a sensing unit 20 and a reference part 10. Light source 21 illuminates reference part 10. Light reflected from the reference part is detected using a plurality of sensors (22.1 to 22.8, 23.1 to 23.4 and 24.1 to 24.4).

FR 2214389 discloses a device for measuring longitudinal movement of an object carrying three tracks of geometric configurations/figures as shown in Figures 2 and 5. The picture of a grating is projected onto these tracks of geometric figures. The amount of light reflected by the tracks depends on which portions of the geometric figures are located in the shadow of the grating and which portions of the figures are situated in an illuminated region. The change in light intensity received by detectors monitoring the tracks can be seen in the bottom half of Figure 2 and conclusions can be drawn on the position of the coding track relative to the grating from the amount of light reflected.

FR 2697910 discloses a device for determining relative movement between two objects. This object is illuminated with light having a first wavelength 1. Light of a second wavelength 2 is reflected on an optical element 9A. Analysing means 7 uses the two reflected waves 1 and 2 to determine the movement of object 2.

FR 2585125 discloses a high definition coding disk and measurement sensor for detecting the angular position of a coding disk using a plurality of optical fibres.

FR 2592960 discloses a multi-track coding disk, the rotational orientation of which is detected using two optical fibres 7 and 8.

EP 0188960 discloses a device for reading a coding element 1. Light is transmitted through optical fibres 13 and 17. Light travelling through optical fibre 17 can pass through transparent sections of the optical coding element 1 and be received by receiver 10. Receiver 10 controls a micro mirror 19 which can reflect light received through optical fibres 13 back into optical fibre 13 (and therefore convey information across the disk using the reflected light beam). Light transmitted back through optical fibre 13 is received by receiving elements 23.

The Commissioner is hereby authorized to charge underpayment of any additional fees or credit any overpayment associated with this communication to Deposit Account No. 501826.

Respectfully submitted,

Date: April 6, 2005

By: Burt Magen

Burt Magen
Reg. No. 37,175

VIERRA MAGEN MARCUS HARMON & DENIRO LLP
685 Market Street, Suite 540
San Francisco, California 94105-4206
Telephone: (415) 369-9660
Facsimile: (415) 369-9665

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CH		US-4,521,683	6/4/1985	Miller	
		US-4,554,451	11/19/1985	Kirstein	
		US-4,628,197	12/9/1986	Thompson	
		US-4,634,861	1/6/1987	Ching et al.	
		US-4,654,523	3/31/987	Tanaka et al.	
		US-4,695,164	9/22/1987	Zivitz et al.	
		US-4,704,523	11/3/1987	Uchida	
		US-4,713,541	12/15/1987	Renaud et al.	
		US-4,814,604	3/21/1989	Lequime	
		US-4,867,568	9/19/1989	Heinz et al.	
		US-4,908,510	3/13/1990	Huggins et al.	
		US-5,069,547	12/3/1991	Huggins et al.	
		US-5,152,066	10/6/1992	Rieder et al.	
		US-5,177,355	1/5/1993	Branan, Jr.	
		US-5,204,524	4/20/1993	Ichidawa et al.	
		US-5,285,058	2/8/1994	Goodwin	
		US-5,371,359	12/6/1994	Hagiuda et al.	
		US-5,384,460	1/24/1995	Tseng	

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CH		US-5,508,088	4/16/1996	Braun	
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		US-5,585,924	12/17/1996	Schneider et al.	
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		US-6,271,950	8/7/2001	Hansen et al.	
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Attorney Docket Number	DEHN-01004US0

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Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

Examiner Signature		Date Considered	10/28/07

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Application Number	10/510,376
Filing Date	October 5, 2004
First Named Inventor	Schaake
Art Unit	
Examiner Name	
Attorney Docket Number	DEHN-01004US0

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(Use as many sheets as necessary)

Sheet 5 of 5

	Complete if Known
Application Number	10/510,376
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Examiner Name	
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NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
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Examiner Signature		Date Considered	10/28/07

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